Claims

1. An optoelectronic sensing device, in particular a laser scanner, comprising a transmitter device (11) for the transmission of electromagnetic radiation (13), preferably pulsed electromagnetic radiation, at least one receiver device (15) associated with the transmitter device (11) and at least one deflection device (47), with which radiation (13) transmitted by the transmitter device (11) can be directed into a monitored zone and radiation (19) reflected from the monitored zone can be directed onto the receiver device (15),
characterized in that
the transmitter device (11) includes a plurality of transmitter modules (11), preferably precisely two transmitter modules, which are spatially separate from one another and which each transmit radiation (13) along their own propagation path.

2. A sensing device in accordance with claim 1, characterized in that the propagation paths of the radiation (13) transmitted by the transmitter modules (11) extend free of overlap at least partly, preferably at least inside a near region of the sensing device relevant to the safety of the eyes.

3. A sensing device in accordance with claim 1, characterized in that the transmitter modules (11) are made and aligned such that the fronts of the transmitted radiation (13) together form a total radiation front in the monitored zone which is preferably larger than each of the individual radiation fronts at least at distances relevant to the respective application.

4. A sensing device in accordance with claim 1, characterized in that the transmitter modules (11) are each made for the transmission of an elongated radiation front, with the radiation front preferably being a continuous radiation line or being formed by discrete radiation spots arranged along a line.

5. A sensing device in accordance with claim 1, characterized in that the transmitter modules (11) each include at least one laser diode (69) as a radiation source which is designed for the transmission of a linear or line-shaped radiation front.

6. A sensing device in accordance with claim 1, characterized in that an optical transmitter system preferably provided in the form of a lens (33) is positioned in front of each transmitter module (11).

7 A sensing device in accordance with claim 1, characterized in that the transmitter modules (11) and/or optical transmitter systems (33) positioned in front of the transmitter modules (11) are made with the same construction.

8. A sensing device in accordance with claim 1, characterized in that a common receiver device (15) is associated with the transmitter modules (11).

9. A sensing device in accordance with claim 1, characterized in that the receiver device (15) has an areal radiation receiver (59) which is preferably matched to the shape of a total radiation front jointly generated by the transmitter modules (11).

10. A sensing device in accordance with claim 1, characterized in that the receiver device (15), in particular an areal radiation receiver (59), is divided into a plurality of receiver regions which can each be evaluated separately from one another and which each preferably include one or more photodiodes, with at least one receiver region being associated with each transmitter module (11).

11. A sensing device in accordance with claim 1, characterized in that an optical receiver system (35) is associated with each receiver device (15) and is preferably disposed in a common transmitter/receiver plane together with optical transmitter systems (33) positioned in front of the transmitter modules (11).

12. A sensing device in accordance with claim 1, characterized in that a common deflection device (47) is associated with the transmitter modules (11).

13. A sensing device in accordance with claim 1, characterized in that the deflection device (47) is rotatable and is in particular made to carry out a continuous rotary movement at a constant rotational speed.

14. A sensing device in accordance with claim 1, characterized in that the deflection device has at least one planar reflection surface (47) for radiation (13, 19) transmitted by the transmitter modules (11) and reflected from the monitored zone, with the radiation (13) transmitted by the transmitter modules (11) and the radiation (19) reflected from the monitored zone preferably being incident on the reflection surface (47) at regions spatially separate from one another.

15. A sensing device in accordance with claim 1, characterized in that a reflection surface (47) of the deflection device extends at an inclination to a common transmitter/receiver plane of the transmitter modules (11) and of the receiver device (15) and in that the deflection device is rotatable around an axis (49) extending approximately perpendicular to the transmitter/receiver plane.

16. A sensing device in accordance with claim 1, characterized in that the transmitter modules (11) are arranged to the side of a common receiver device (15), preferably such that the transmitter modules (11) and the receiver device (15) lie on one line at least in projection onto a common transmitter/receiver plane.

17. A sensing device in accordance with claim 1, characterized in that the transmitter modules (11) are preferably arranged symmetrically on oppositely disposed sides of the receiver device (15).

18. A sensing device in accordance with claim 1, characterized in that an axis of rotation (49) of the deflection device (47) extends centrally through the receiver device (15) and the transmitter modules (11) are arranged equally far away from the axis of rotation (49).

19. A sensing device in accordance with claim 1, characterized in that the spacing between the transmitter modules (11) is maximized such that the radiation (13) transmitted by the transmitter modules (11) is deflected by marginal regions of the deflection device (47).

20. A sensing device in accordance with claim 1, characterized in that the propagation path of the radiation (13) transmitted by at least

one transmitter module (11), on the one hand, and the receiving path of the radiation (19) reflected from the monitored zone and directed onto the receiver device (15), on the other hand, extend free of overlap in a near region including the radiation exit surface (45) of the sensing device.

21. A sensing device in accordance with claim 1, characterized in that the transmitter modules (11) can be controlled for the alternate transmission of radiation pulses.

22. A method for the operation of an optoelectronic sensing device, in particular a laser scanner, comprising a transmitter device (11) for the transmission of electromagnetic radiation (13), preferably pulsed electromagnetic radiation, at least one receiver device (15) associated with the transmitter device (11) and at least one deflection device (47), with which radiation (13) transmitted by the transmitter device (11) can be directed into a monitored zone and radiation (19) reflected from the monitored zone can be directed onto the receiver device (15), wherein the transmitter device (11) includes a plurality of transmitter modules (11), preferably precisely two transmitter modules, which are spatially separate from one another and which each transmit radiation (13) along their own propagation path, andwherein the transmitter modules (11) are controlled such that the transmitter modules (11) transmit the radiation (13) with a time offset and in particular alternately in the form of radiation pulses in each case.

23. Use of at least one optoelectronic sensing device, in particular a laser scanner, comprising a transmitter device (11) for the transmission of electromagnetic radiation (13), preferably pulsed electromag-

netic radiation, at least one receiver device (15) associated with the transmitter device (11) and at least one deflection device (47), with which radiation (13) transmitted by the transmitter device (11) can be directed into a monitored zone and radiation (19) reflected from the monitored zone can be directed onto the receiver device (15), wherein the transmitter device (11) includes a plurality of transmitter modules (11), preferably precisely two transmitter modules, which are spatially separate from one another and which each transmit radiation (13) along their own propagation path, in conjunction with a vehicle, in particular for object recognition and object tracking.

24. Use in accordance with claim 23, characterized in that an optoelectronic sensing device is used which is made and is attached to or in the vehicle such that, in normal driving operation, elongated radiation fronts transmitted by the transmitter modules (11) respectively extend, on a propagation in the direction of travel, at least substantially in a vertical direction, with the radiation fronts preferably lying over one another in a vertical direction.